REMARKS

The Office Action dated December 6, 2007 has been received and carefully noted. The above amendments to the title, specification, Abstract and claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-2, 4-15 and 18-20 been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 3, 16-17 and 21-41 have been canceled without prejudice or disclaimer. Claims 42-65 have been newly added. No new matter has been added. Claims 1-2, 4-15, 18-20 and 42-65 are presently pending.

The Office Action indicated that the information disclosure statement (IDS) was not considered because the pertinent page numbers were not offered. Applicants submit that there is no requirement that the page numbers be offered under current U.S. patent practice. Accordingly, consideration of the IDS in the next communication sent from the U.S.P.T.O. is respectfully requested.

The Office Action objected to the Title for failing to provide an adequate description of the invention. Applicants have amended the Title to provide a more descriptive indication of the invention. Withdrawal of the objection is kindly requested.

The Office Action objected to the Abstract of the disclosure. Applicants submit that the Abstract has been amended to remove the legalese and is now in accordance with §608.01(b) of the MPEP. Withdrawal of the objection is kindly requested.

The Office Action objected to the specification for containing hyperlinks. Applicants have amended the specification to remove the hyperlinks. Withdrawal of the objection is kindly requested.

Claims 15-17 and 32 are objected to for containing minor informalities. Applicants have amended claims 15-17 and 32 to correct those minor informalities. Withdrawal of the objection is kindly requested.

Claims 1-3, 5-10, 15-21, 23-26, 32, 34, 36-37 and 40 were rejected under 35 U.S.C. §102(b) as being anticipated by Gupta et al. (U.S. Patent No. 6,389,532). Applicants respectfully traverse this rejection and submit that newly amended independent claims 1, 18-20, 34, 42, 54, 58 and 63-65 contain subject matter not disclosed in Gupta.

Claim 1, upon which claims 2, and 4-15 are dependent, recites a method that includes generating validity information for a packet, wherein the validity information comprises all necessary information required to perform a validity check of the packet, the validity information comprising algorithm information to be used to perform the validity check of the packet. The method further provides generating a packet header, comprising the validity information. The method also includes sending the packet including the header from a first network node to a second network node.

Claim 18 recites an apparatus that includes validity information generating means for generating validity information for a packet. The apparatus also includes packet header generating means for generating a header for the packet, comprising the validity information, and sending means for sending the packet including the header to a receiving network node. The apparatus further provides that the validity information comprises all necessary information required for performing a validity check of the

packet, and the validity information comprises algorithm information to be used to perform the validity check of the packet.

Claim 19 recites an apparatus that includes receiving means for receiving packets from a sending network node, and performing means for performing a validity check of a packet by referring to validity information contained in a header of the packet. The validity information comprises all necessary information required for performing the validity check of the packet, and the validity information comprises algorithm information to be used to perform the validity check of the packet.

Claim 20 recite an apparatus that includes forwarding means for forwarding packets from a sending network node to a receiving network node, and performing means for performing a validity check of a packet by referring to validity information contained in a header of the packet. The apparatus also provides that the validity information comprises all necessary information required for performing a validity check of the packet, and the validity information comprises algorithm information to be used to perform the validity check of the packet.

As will be discussed below, the teachings of Gupta fail to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above. The rejection is respectfully traversed for at least the following reasons.

As described at the top of page 2 of the introduction of the present patent application, the prior art requires all network nodes involved in transmitting data packets to be provided with the necessary verification information to validate packets. This limits the routes that may be taken by a stream of packets and requires complicated

management of the network. The present application provides packet protection to packets sent from a first network node to a second network node, wherein the amount of protocol messages are reduced. For instance, claim 1 recites, in part, "generating validity information for a packet, wherein the validity information comprises all necessary information required to perform a validity check of the packet, the validity information comprising algorithm information to be used to perform the validity check of the packet...generating a packet header, comprising the validity information...sending the packet including the header from a first network node to a second network node." Gupta does not disclose at least these features of claim 1.

As described above, the validity information, i.e. the information necessary to verify the validity of the packet, is incorporated into a header of the packet. The validity information comprises all necessary information required to perform a validity check of the packet and in particular comprises algorithm information with respect to the algorithm used to perform the validity check of the packets (emphasis added). The validity checks can be handled flexibly in the network, since each network node involved in the packet communication can obtain the required algorithm information as needed for verification. Contrary to the subject matter recited in claim 1 of the present application, Gupta discloses a method and apparatus for filtering packets that does not include the same packet verification features recited in claim 1.

Gupta discloses a method and apparatus for filtering packets in a network using digital signatures. A router or firewall is used to test the validity of the digital signature using a public key (see Abstract of Gupta). Based on the validity of the signature, the

packet is either discarded or forwarded (see Fig. 7 of Gupta). Referring to Fig. 3 of Gupta, the structure of a packet includes a packet header 302 which comprises a fingerprint 308, a signature 310, a key index 312 and IP header options 322.

On column 3, lines 41-48 of Gupta, a process describes how the packet is generated. In particular, a fingerprint corresponding to data contained in the packet is generated, and the fingerprint is encrypted using the sender's private key. The encrypted fingerprint is used as the signature. This is also evident from Fig. 6 and column 6, lines 25-55 of Gupta. According to Gupta the algorithm used to handle the packet fingerprint must be known beforehand. Step 602 of Fig. 6 clearly illustrates that the necessary private keys are exchanged before the packet is transmitted.

Gupta is directed to the same disadvantages described on page 2 of the introduction of the present application, as noted above. Gupta does not describe generating a packet header with validity information to be used to perform the validity check of the packet. It is clear from Fig. 6 and column 6, lines 25-55 of Gupta that all of the validity information generated for a packet is not in a packet header of the packet, as recited in claim 1. Gupta is directed to the type of prior art recognized by the patent application and does not disclose the subject matter recited in independent claim 1 and similarly recited in independent claims 18-20, 34, 42, 54, 58 and 62.

Therefore, for at least the reasons stated above, Applicants submit that Gupta fails to teach all of the subject matter recited in independent claims 1, 18-20, 34, 42, 54, 58 and 62. By virtue of dependency claims 2, 4-15, 43-53, 55-57 and 59-64 are also

allowable over Gupta. Withdrawal of the rejection of claims 1-3, 5-10, 15-21, 23-26, 32, 34, 36-37 and 40 is respectfully requested.

Claims 33 and 35 are rejected under 35 U.S.C. §103(a) as being unpatentable over Gupta. This rejection is respectfully traversed.

As stated above, Gupta fails to teach all of the subject matter of independent claims 1, 18-20, 34, 42, 54, 58 and 62. Claims 33 and 35 are dependent upon independent claims 18 and 34 and incorporate all of the subject matter of claims 18 and 34, respectively. Accordingly, claims 33 and 35 should be allowed for at least their dependence upon claims 18 and 34, and for the specific limitations recited therein. Withdrawal of the rejection of claims 33 and 35 is respectfully requested.

Claims 12-14 and 29-31 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Gupta in view of Naudus (U.S. Patent No. 6,202,081). This rejection is respectfully traversed.

Gupta is discussed above. Naudus discloses a method and protocol for synchronized transfer-window based firewall traversal. In column 6, line 60, to column 7, line 7 of Naudus, a security association is described which may also indicate an encryption technique (i.e., the hashed message authentication code (HMAC) keyed-message digest-5 (MD5)). A security association, however, requires establishing the security association, and the exchange of several messages beforehand prior to a packet transmission. Therefore, Naudus shares the same disadvantages as Gupta which is directed to the prior art described in the present application.

Claims 12-14 and 29-31 are dependent upon claims 1 an 18 and contain all of the limitations thereof. As discussed above, the teachings of Gupta fails to disclose or suggest all of the elements of claims 1 and 18. In addition, Naudus fails to cure the deficiencies in Gupta as Naudus also fails to disclose or suggest "generating validity information for a packet, wherein the validity information comprises all necessary information required to perform a validity check of the packet, the validity information comprising algorithm information to be used to perform the validity check of the packet...generating a packet header, comprising the validity information...sending the packet including the header from a first network node to a second network node" as recited in claim 1 and similarly in claim 18. Accordingly, the combination of Gupta and Naudus fails to disclose or suggest all of the elements of claims 12-14 and 29-31. Furthermore, claims 12-14 and 29-31 should be allowed for at least their dependence upon claims 1 and 18, and for the specific limitations recited therein.

Claims 11, 27 and 28 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Gupta in view of Nikander (U.S. Patent No. 7,155,500). This rejection is respectfully traversed.

Gupta is discussed above. Nikander discloses a method of verifying that a host coupled to an IP network is authorized to use an IP address. The IP address comprising a routing prefix and an interface identifier part. The method comprises receiving from the host one or more components, applying a one-way coding function to the or each component and/or derivatives of the or each component, and comparing the result or a derivative of the result against the interface identifier part of the IP address. If the result

or its derivative matches the interface identifier the host is assumed to be authorized to use the IP address and if the result or its derivative does not match the interface identifier the host is assumed not to be authorized to use the IP address.

Claims 11, 27 and 28 are dependent upon claims 1 an 18 and contain all of the limitations thereof. As discussed above, the teachings of Gupta fails to disclose or suggest all of the elements of claims 1 and 18. In addition, Nikander fails to cure the deficiencies in Gupta as Nikander also fails to disclose or suggest "generating validity information for a packet, wherein the validity information comprises all necessary information required to perform a validity check of the packet, the validity information comprising algorithm information to be used to perform the validity check of the packet...generating a packet header, comprising the validity information...sending the packet including the header from a first network node to a second network node" as recited in claim 1 and similarly in claim 18. Accordingly, the combination of Gupta and Nikander fails to disclose or suggest all of the elements of claims 11, 27 and 28. Furthermore, claims 11, 27 and 28 should be allowed for at least their dependence upon claims 1 and 18, and for the specific limitations recited therein.

For at least the reasons discussed above, Applicants respectfully submit that the cited references fail to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-2, 4-15, 18-20 and 42-65 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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Enclosures: Petition for Extension of Time
Additional Claims Transmittal
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